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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/553,657
Filing Date: October 14, 2005
Appellant(s): SERBAN, BOGDAN

Joseph Wrkich
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 1 October 2009 appealing from the Office action mailed 13 April 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,159,159	Asher	10-1992
3,806,912	Eckert	04-1974

5,543,589	Buchana	08-1996
4,517,546	Kakuhashi	05-1985

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 11-12, 16-17, 19-20, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asher* (US Patent No. 5,159,159) in view of *Eckert* (US Patent No. 3,806,912).

As to **claim 9,** *Asher* (Fig. 2) discloses a position detection device (touch sensor detecting position [abstract]), comprising:

a first substrate (insulation film 20);

a first ohmic resistor (33) applied to said first substrate and extending along an active surface of said position detector (fixed resistor 33 deposited on the substrate), said first ohmic resistor connected between first and second terminals of said position detection device (fixed resistor 33 is connected on opposite ends to terminals 10 and 11 which are connected to the touch sensor [col. 8, lines 10-11 and 35-36];

a plurality of electrical conductors (31) connected to the first ohmic resistor at discrete points thereon and said electrical conductors extending from the first ohmic resistor within the active surface (conductive traces 31 are placed at fixed positions along the fixed resistor 33 and extending out across the touchpad [col. 8, lines 37-39]; and

a plurality of conducting elements (30) arranged, within said active surface (on the same substrate 20 within the touchpad), a first end of said conducting elements being connected to a third terminal of said position detection device (conductive traces 30 are connected at opposing ends to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]); wherein

said conducting elements are configured as an ohmic resistor extending over the active surface of the device (force variable resistor traces 40 are deposited over conductive traces 30 to create ohmic resistors [col. 8, lines 64-66]) and a second end of said conducting elements is connected to a fourth terminal of said position detection device (opposing ends of conductive traces 30 are connected to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]).

Asher does not expressly disclose the conducting elements being located so as to alternate between said electrical conductors.

Eckert (Fig. 1) discloses the conducting elements being located so as to alternate between said first electrical conductors (conducting elements 20

configured as ohmic resistors [col. 2, line 66] are located parallel to conductive traces 14 and 22).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have arranged the traces as taught by *Eckert* in the position detector of *Asher*. The suggestion/motivation would have been to simplify the circuitry [col. 1, lines 59-60] and ease of manufacturing [col. 1, line 20].

As to **claim 16,** *Asher* (Fig. 2) discloses a data input device including a position detection device (touchpad for sensing position data via input from a finger or stylus [abstract]), said position detection device comprising:

a first substrate (insulation film 20);

a first ohmic resistor (33) applied to said first substrate and extending along an active surface of said position detector (fixed resistor 33 deposited on the substrate), said first ohmic resistor connected between first and second terminals of said position detection device (fixed resistor 33 is connected on opposite ends to terminals 10 and 11 which are connected to the touch sensor [col. 8, lines 10-11 and 35-36];

a plurality of electrical conductors (31) connected to the first ohmic resistor at discrete points thereon and said electrical conductors extending from the first ohmic resistor within the active surface (conductive traces 31 are placed at fixed positions along the fixed resistor 33 and extending out across the touchpad [col. 8, lines 37-39]; and

a plurality of conducting elements (30) arranged, within said active surface (on the same substrate 20 within the touchpad), a first end of said conducting elements being connected to a third terminal of said position detection device (opposing ends of conductive traces 30 are connected to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]); wherein

said conducting elements are configured as an ohmic resistor extending over the active surface of the device (force variable resistor traces 40 are deposited over conductive traces 30 to create ohmic resistors [col. 8, lines 64-66]) and a second end of said conducting elements is connected to a fourth terminal of said position detection device (conductive traces 30 are connected at opposing ends to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]).

Asher does not expressly disclose the conducting elements being located so as to alternate between said electrical conductors.

Eckert (Fig. 1) discloses the conducting elements being located so as to alternate between said first electrical conductors (conducting elements 20 configured as ohmic resistors [col. 2, line 66] are located parallel to conductive traces 14 and 22).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have arranged the traces as taught by *Eckert* in the position detector of *Asher*. The suggestion/motivation would have been to

simplify the circuitry [col. 1, lines 59-60] and ease of manufacturing [col. 1, line 20].

As to **claim 17,** *Asher* (Fig. 2) discloses a position detection device (touchpad for sensing touch position [abstract]) having an active surface (substrate 20 of the touchpad on which the touch traces are located) and at least a first and a second terminal (terminals 10-13 connect the touch sensor to the touch pad [col. 8, line 10]), said position detector comprising:

a first substrate (insulation film 20);

a first ohmic resistor (33) applied to said first substrate and extending along said active surface (fixed resistor 33 deposited on the substrate), said first ohmic resistor being connected between said first and second terminals (fixed resistor 33 is connected on opposite ends to terminals 10 and 11 which are connected to the touch sensor [col. 8, lines 10-11 and 35-36];

a plurality of electrical conductors (31) connected to the first ohmic resistor at discrete points thereon and said electrical conductors extending from the first ohmic resistor within the active surface (conductive traces 31 are placed at fixed positions along the fixed resistor 33 and extending out across the touchpad [col. 8, lines 37-39]; and

a plurality of conducting elements (30) arranged, within said active surface (on the same substrate 20 within the touchpad), a first end of said conducting elements being connected to a third terminal of said position detection device

(opposing ends of conductive traces 30 are connected to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]); wherein

said conducting elements are configured as an ohmic resistor extending over the active surface of the device (force variable resistor traces 40 are deposited over conductive traces 30 to create ohmic resistors [col. 8, lines 64-66]) and a second end of said conducting elements is connected to a fourth terminal of said position detection device (conductive traces 30 are connected at opposing ends to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]).

Asher does not expressly disclose the conducting elements being located so as to alternate between said electrical conductors.

Eckert (Fig. 1) discloses the conducting elements being located so as to alternate between said first electrical conductors (conducting elements 20 configured as ohmic resistors [col. 2, line 66] are located parallel to conductive traces 14 and 22).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have arranged the traces as taught by *Eckert* in the position detector of *Asher.* The suggestion/motivation would have been to simplify the circuitry [col. 1, lines 59-60] and ease of manufacturing [col. 1, line 20].

As to **claim 24,** *Asher* discloses a data input device including a position detection device (touchpad for sensing position data via input from a finger or

stylus [abstract]) having an active surface (substrate 20 of the touchpad on which the touch traces are located) and at least a first and second terminal (terminals 10-13 connect the touch sensor to the touch pad [col. 8, line 10]), said position detection device comprising:

a first substrate (insulation film 20);

a first ohmic resistor (33) applied to said first substrate and extending along said active surface (fixed resistor 33 deposited on the substrate), said first ohmic resistor being connected between said first and second terminals (fixed resistor 33 is connected on opposite ends to terminals 10 and 11 which are connected to the touch sensor [col. 8, lines 10-11 and 35-36];

a plurality of electrical conductors (31) connected to the first ohmic resistor at discrete points thereon and said electrical conductors extending from the first ohmic resistor within the active surface (conductive traces 31 are placed at fixed positions along the fixed resistor 33 and extending out across the touchpad [col. 8, lines 37-39]; and

a plurality of conducting elements (30) arranged, within said active surface (on the same substrate 20 within the touchpad), a first end of said conducting elements being connected to a third terminal of said position detection device (conductive traces 30 are connected at opposing ends to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]); wherein

said conducting elements are configured as an ohmic resistor extending over the active surface of the device (force variable resistor traces 40 are

deposited over conductive traces 30 to create ohmic resistors [col. 8, lines 64-66]) and a second end of said conducting elements is connected to a fourth terminal of said position detection device (opposing ends of conductive traces 30 are connected to terminals 12 and 13 of the touch sensor [col. 8, lines 10-11 and 39-41]).

Asher does not expressly disclose the conducting elements being located so as to alternate between said electrical conductors.

Eckert (Fig. 1) discloses the conducting elements being located so as to alternate between said first electrical conductors (conducting elements 20 configured as ohmic resistors [col. 2, line 66] are located parallel to conductive traces 14 and 22).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have arranged the traces as taught by *Eckert* in the position detector of *Asher*. The suggestion/motivation would have been to simplify the circuitry [col. 1, lines 59-60] and ease of manufacturing [col. 1, line 20].

As to **claims 11 and 19,** *Eckert* further discloses wherein the first substrate comprises a printed circuit board (material of substrate 13 is that of a printed circuit board [col. 3, lines 11-14]).

As to **claims 12 and 20,** *Asher* discloses wherein said conducting elements are made of a same material as said electrical conductors (conductive

traces 30 and 31 can either be printed inks or thin metallic films [col. 7, lines 61-66]).

Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asher* (US Patent No. 5,159,159) in view of *Eckert* (US Patent No. 3,806,912) and *Buchana* (US Patent No. 5,543,589).

Asher in view of *Eckert* does not expressly disclose wherein the first substrate comprises an elastic support sheet.

Buckana discloses wherein the first substrate comprises an elastic support sheet (bottom substrate 10 in Fig. 1E can be replaced with a more flexible substrate such as the same material used flexible membrane touch surface [col. 8, line 66-col. 9, line 2]).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have use a flexible substrate as taught by *Buchana* in the position detector of *Asher* as modified by *Eckert*. The suggestion/motivation would have been to make the entire touchpad flexible to attach to nonplanar surfaces [col. 8, lines 58-65].

Claims 13-15 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asher* (US Patent No. 5,159,159) in view of *Eckert* (US Patent No. 3,806,912) and *Kakuhashi* (US Patent No. 4,517,546).

As to **claims 13 and 21,** *Asher* in view of *Eckert* does not expressly disclose a second substrate and a layer made of resistive or semiconductor material applied to said second substrate, said second substrate being arranged on top of the first substrate such that said layer of resistive or semiconductor material faces said electrical conductors and conducting elements within the active surface.

Kakuhashi (Fig. 6) discloses a second substrate (flexible insulating layer 4B) and a layer made of resistive or semiconductor material applied to said second substrate (main resistive layer 3B superposed to the bottom of insulating layer 4B [col. 5, lines 15-18]), said second substrate being arranged on top of the first substrate (resistive layer 13 is put on top of electrode layer 6x and the bottom resistive layer 11 [col. 5, lines 15-18]) such that said layer of resistive or semiconductor material faces said electrical conductors and conducting elements within the active surface (resistive layer 3B is between electrode layer 6x and protective insulating layer 4B).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have provided the resistive layer as taught by *Kakuhashi* in the position detector of *Asher* as modified by *Eckert.* The suggestion/motivation would have been as a protective layer to resist wear [col. 4, lines 12-13].

As to **claims 14 and 22**, *Kakuhashi* further discloses wherein said second substrate comprises an elastic support sheet (flexible protective insulating layer

4B [col. 5, lines 16-19] [col. 3, lines 40-43]; also attached to elastic pressure sensitive conductor sheet 12).

As to **claims 15 and 23**, *Kakuhashi* further discloses a pressure-distributing layer applied to said second substrate (when pressed, insulating layer 14 will distribute pressure over the whole touch pad in a manner proportional to it's rigidity. The harder the layer, the more evenly the pressure will be distributed over the touchpad. If the layer is very flexible, the pressure will only be distributed throughout a small area around the point of contact [col. 3, lines 36-46]; elastic pressure sensitive conductive sheet 12 is located below the top substrate to be used for pressure measurements [col. 5, line 15]).

(10) Response to Argument

Regarding claim 9, Appellant argues (page 8 of the Appeal Brief) that "Asher fails to disclose or suggest the claimed 'a first end of said conducting elements is connected to a third terminal of said position detection device' and 'a second end of said conducting elements is connected to a fourth terminal of said position detection device,'". Examiner respectfully disagrees. The cited prior art of *Asher* (at least Fig. 2) teaches a plurality of conductive traces 30 with one end of each conductive trace 30 directly connected to a third and fourth terminals 12 and 13, respectively, which are connected to the circuitry for detecting touch position in the Y dimension [col. 8, lines 5-7, 10-11, and 35-41]. Consequently, the opposing end of the conductive trace 30 must also be connected to terminals 12 and 13 since both ends of conductive trace 30 are necessarily connected to each other as noted by the Applicant (page 8 of the Appeal

Brief) in the submission that each trace 30 is a single conductive trace with the same electrical potential throughout it's entire length. These connections have been illustrated for emphasis in *Asher's* Figure 2 below. It can be seen that a first end of each conductive trace 30 (indicated by the short red in the figure) is directly connected to a third terminal 12 while the opposing second end of each conductive trace 30 (indicated by the longer blue line in the figure) is connected to a fourth terminal 13 (through the cited first end).

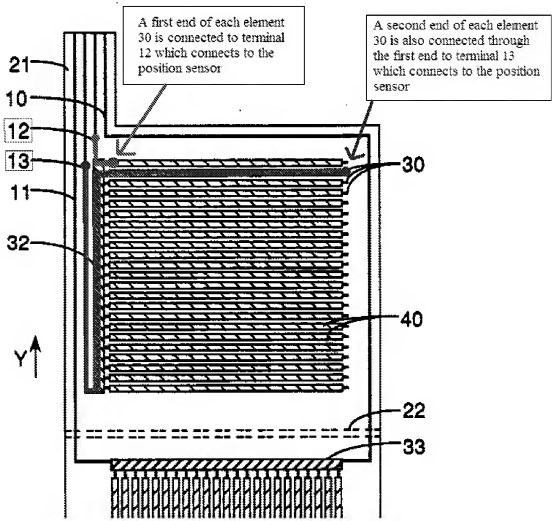

Figure 2

The Appellant argues that the cited second end is not connected by stating "Asher describes conductive elements, wherein only a first end is connected, while the other end is unconnected." Examiner respectfully disagrees. The term "connected" is not strictly limited as there are multiple methods of "connecting". Items can be indirectly connected (connected with components such as transistors, capacitors, resistors, etc. between them), directly connected (connected without any intervening components between the parts to be connected), physically connected (connected to the same wire/trace or even constructed on the same substrate or panel), electrically connected (connected in some way within the same electrical circuit), or even wirelessly connected (a wireless connection can be made between computing devices without any physical connection what-so-ever). Appellant agrees (page 8 of Appeal Brief) that the second end is at least electrically connected since it is stated that "The conductive trace 30 of Asher....will be at the same electrical potential across its entire length." Furthermore, as cited in the Examiner's Final Rejection the second end of trace 30 must necessarily be physically connected to terminal 13 since the first end of trace 30 is connected to terminals 12 and 13 and the second end of trace 30 is connected to the first end of trace 30 (since they are just two ends of the same trace).

Further, Appellant argues (page 9 of the Appeal Brief) that "It is unreasonable to interpret a free end of Asher's element 30 as being connected, which is an interpretation that would result in reading 'connected' as identical to it antonym." Examiner respectfully disagrees. Firstly, Examiner can find no mention of "free end" in *Asher*.

Appellant relies on (page 9 of the Appeal Brief) a portion of *Asher* mentioning "the fixed resistor 32 overlays one end of each of the conductive traces" as teaching the "free end". Appellant states that "a person of ordinary skill in the art would understand this (overlays one end) to mean that only one end...is connected." However, *Asher* never discusses that only one end is connected. Asher merely teaches what the first end is connected to without mention of the second end. The connection of one end of a wire to a component does not necessitate or even imply that the other end is "free", since they are the same wire and both ends necessarily must be connected to each other. Secondly, the Appellant has not clarified connected (i.e. directly connected as suggested) in any way that prevents the Examiner's interpretation of simply being linked together. Even if *Asher* disclosed having one "free end" of a wire (which is not the case) that is understood by a person of ordinary skill in the art to mean that nothing is "directly connected" to that end. This is one of the reasons the Examiner suggested the addition of this limitation to overcome the current rejection.

Appellant further submits that "the Examiner's position is so impermissibly broad that no wire could ever be described as having an end that is free or not connected." Examiner respectfully disagrees. As mentioned above, a "free end" is viewed as one that is not "directly connected" to a component. As described, since the ends of elements 30 are the ends of one item (a trace), the second end must necessarily be "connected" to the other end and thus terminals 12 and 13. However, the second end is not "directly connected" as the Appellant is arguing. Examiner agrees that it is not

"directly connected" and as mentioned has suggested the Appellant claim said limitation of "directly connected".

The claim, as written, is too broad to be distinguishable over the cited prior art. Further, it has been suggested to the Applicant on multiple occasions that a better phrasing of the claim language be made in order to better point out and particularly differentiate the instant invention from the indicated art. One suggestion was to indicate the ends of the line as being "directly connected" which would have overcome the current rejection.

Therefore, it is the contention of the Examiner that *Asher* in view of *Eckert* sufficiently teaches the claimed limitations of "a first end of said conducting elements is connected to a third terminal of said position detection device" and "a second end of said conducting elements is connected to a fourth terminal of said position detection device".

Regarding claims 16, 17, and 24, they recite analogous material and have been appealed on the same subject matter (page 13 of Appeal Brief).

Regarding claims 11, 12, 19, and 20, they depend upon claims 9 and 17 and thus have been appealed on the same subject matter (page 13 of Appeal Brief).

Regarding claims 10 and 18, they depend upon claims 9 and 17 and thus have been appealed on the same subject matter (page 13 of Appeal Brief).

Regarding claims 13-15 and 21-23, they depend upon claims 9 and 17 and thus have been appealed on the same subject matter (page 14 of Appeal Brief).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

/Robert M Stone/
Examiner, Art Unit 2629

Conferees

/Chanh Nguyen/
Supervisory Patent Examiner, Art Unit 2629

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